

REMARKS

The present amendment is submitted in an earnest effort to advance the case to issue without delay.

Independent claim 14 has been amended to focus upon hydroxy ethyl cellulose. Since the claim has been narrowed, the Examiner is requested to enter this Amendment. Claims 17 and 18 have been canceled.

Claims 14-17 were rejected under 35 U.S.C. § 103(a) as unpatentable over Peffly (U.S. Patent 5,985,294). Applicants traverse this rejection.

Moisture and the natural tendency of curly hair to revert are enemies in the battle to retain a desired hairstyle configuration. Hair holding polymers have been enlisted to fight this battle. These materials are good soldiers. Yet they often are required to be marshaled at high concentrations. Unwanted collateral damage often occurs in the form of flaking. The most effective polymers are those which display excellent stiffness and a high crust signal. Accordingly, applicants have sought to identify hair holding polymer systems with the aforementioned properties indicating high styling efficiency yet that are operative at levels no higher than about 1.5% active holding polymer.

In pursuit of this goal, applicants have identified polymers derived from copolymerization of methacrylamidopropyl dimethylamine and vinylpyrrolidone (hereinafter generically DMAPMA-VP) in combination with hydroxy ethyl cellulose (hereinafter HEC) in a particular ratio range.

Attention is drawn to the comparative experiments in the specification. The Table at page 22 identifies Formulas Z, AA and BB as containing the hair holding polymers of hydroxyethyl cellulose alone, Polymer 1189 (DMAPA-VP) alone and a combination of these two hair holding polymers. Table 7 at page 23 shows the results of Crust and Stiffness testing. There it is seen that the best result is with BB, the combination of the two hair holding polymers.

Only within certain relative weight ratios do these two hair holding polymers function in a synergistic manner. Comparative experiments have been described in the specification to demonstrate the criticality of the weight ratio. A series of formulations with different ratios of DMAPA-VP are reflected in Examples A through I. The results of curl retention testing are reported in Table 1 at page 14. Test 1 (6 hrs) reveals highest retention in the 90% region for Examples B and C corresponding to ratios of 1:0.4 and 1:0.7, respectively for DMAPA-VP to HEC. Slightly poorer performance (circa 83-84%) is found with Examples G and H, respectively having ratios 1:1.6 and 1:1.9. The outer limits are represented by Examples E and I having curl retention percent values circa 80% reflecting respective ratios of 1:0.2 and 1:2.2. Clearly outside the effective range is Example A with ratio of 1:0.1 and curl retention of 31.4% (taken from Test 2 at 6 hrs.). In accordance with these results, applicants' claim 14 covers a ratio from about 1:2.2 to about 1:0.2.

Peffly discloses a large range of hair styling polymers. These are disclosed at column 3 (line 60) bridging to column 5 (line 23). Among the listed polymers are PVP/DMAPA and hydroxyethyl cellulose. There is no specific recommendation to use combinations of the polymers although several of the Examples do have such combinations. Hydroxyethyl cellulose is mentioned in Example III and PVP/DMAPA is found in Example VI-VII. It is not at all evident that any synergistic effect would be brought about by combining

PVP/DMAPA with HEC. Most certainly there is no teaching or suggestion of a critical ratio range in which these polymers are particularly effective together. For all these reasons, those skilled in the art would not be led to the presently claimed invention from consideration of the Peffly reference.

In view of the foregoing amendment and comments, applicants request the Examiner to reconsider the rejection and now allow the claims.

Respectfully submitted,


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